# 1 Custom Restoration:The difference, point by point

Presented at the National Piano Technician's Guild Conference, Anaheim, California, May 2008

# 2 My background

- Classically trained musician (trombone)
- Rock 'n Roll musician (drums, guitar, vocals)
- Started piano technology training in Atlanta, 1975
  - "Thrown in the pool" at one month
- Dual careers---music and pianos; serially full-time until 1983, then full-time pianos, part-time music until present
- 3 My background
  - Sherman Clay 1983-1987
    - Thrown in the pool again, big time
    - Korean "stencil" pianos
      - Sojin-Daewoo
      - Hanil
    - Steinway School/Bill Garlick
    - Prepared hundreds of new Steinway grands
- 4 My background
  - Private practice in Malibu/west LA
  - Davenport's Rebuilt Steinway, 1988
  - Stephen Bellieu, 1989
  - Raising the bar
  - Piano Factory, 1996
  - David Abell, 1999-2005
  - Atelier, May 2006
  - Steingraeber & Sons, January 2008
- 5 Custom Restoration:
  The difference, point by point
  - How the Business Looks
    - Complete Piano Service
      - Residential
      - Professional
      - Institutional

- Restoration
  - Evaluation
  - Partial
  - Full
  - Action performance enhancement
- 6 Custom Restoration:
  The difference, point by point
  - Sales
    - Remanufactured Steinway, Mason & Hamlin
    - Consignments
    - Rebuilt Vintage "American California" instruments
      - Sohmer
      - Steinert
      - A.B. Chase
      - Baldwin
      - · California pianos:
        - boards intact with crown and bearing
        - original everything
        - usable pinblock
        - quarter-sawn bridge cap
- 7 Custom Restoration:
  The difference, point by point

# Looking at new pianos:

- Fandrich
  - The future? Custom-designed collaborative niche manufacture
- Sauter
  - The European CFIII?
- Steingraeber
  - The best piano you never heard or played

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## What is Custom Restoration?

Definition

# 9 Custom restoration:

- This is what we choose to call the process of musically and **artisanally** rebuilding or remanufacturing a good, hand-built grand piano.
- We use whatever methods, protocols, materials and parts we think will produce the finest piano tone and touch possible.
- Everything rebuildable is rebuilt; everything else is replaced.

- 11 Custom Restoration
  - A passion for music
    - Critical listening
    - Listening for pleasure
    - A sense of wonder

# 12 The Belly

## Soundboard

- New: hybrid redesigns by Erwin
  - Rib vs. compression crowning
  - Rib material, thickness, height, layout
  - Panel selection
  - Panel thickness
- Original: selected California boards with
  - Crown and positive bearing strung
  - Great "pluck and thump"
  - Integrity at cellular level

# 13 The Belly

- Bridges
  - 30-year air-cured rock maple
  - Bridge pins: either titanium or hardened steel
  - Transition bridge at tenor break on certain models
  - Some rescaling usually happens
- Pinblock
  - Full fit install w/ epoxy
  - 6mm Delignit laminated pinblock cap
  - Bolduc or Erwin custom
- Beam/brace/support
  - Erwin's custom tweaks
  - Bell vs. braces on Steinway

# 14 The Belly

# ■ The Damper/Pedal system

- New pivots for tray---lined up with action
- Custom damper weighting and spring adjustment
- New adjustable pedal rods
- Pitman mod in older Steinways, M&H
- Pedal spring strength: leaf & coil---customized for player
- Pedal travel
- The craft of pedaling

# 15 The Action

- David Stanwood
- Weight as true measure
- Ability to "sculpt" touch
- Universal language
- With Stanwood protocols as base, touch is precisely customizable
- Ability to dialogue, update, interface with creator of protocols

## 16 <a> The Action</a>

- Steve Bellieu
- Before Stanwood, we matched SW(strike weight) to existing geometry and leading.
- Discovered we loved the "beef" of a lower Action Ratio(AR)
- AR: traditionally 6:1; our preference is 5.5 (5.5 gm on front of key lifts 1 gm on back)
- Kept moving it down; if we go lower we run into key travel issues (too deep)
- 5.5 AR means we can use modern hammers w/out massive cutdown/taper

## 17 <a> The Action</a>

- Balancing act called Action Ratio:
- 17mm knuckle position, standard size
- Capstan placement and angle is correct----Key Ratio (KR)
- Whippen heel is modified to accommodate capstan move
- Can't change the key ratio (KR) a lot w/out using new keyset or changing plate position
- Ideal KR seems to be different on every action---different relationship of whites to sharps

18 🗀	The Action:
	Strike weight (SW

- ---SW curve diff. on every piano---start with Stanwood's guidelines; our discovery: he's right.
- ---over years learned that SW decisions based on too many things to describe---SW

#### Zones,

player's feedback, intuition

- ---don't exceed upward limits of SW curve
- ---heavy actions all above SW Curve for that AR
- ---hammers are cut to + .10gm (SW, which includes the shank)
- ---only taper in CAPO SECTION---add weight to molding as necessary (lead wire)

## 19 The Action

- Hammer selection: overwhelmingly Renner AA Wurzen felt
- Set selection by Baldassin
- Hammer prep
  - Strike weight and the curve
  - Taper, arc, and cove
  - Pre-voice, file
  - Weighting

# 20 The Action

- Keyframe
- Backchecks
- Key end felt
- Rebushing
- Wurzen felt punchings, front and balance
- When a new keyset is needed

# 21 The Action

- Key Ratio
  - Importance of the bottom lever
  - Ideal distance
  - Ideal angle of capstan
  - As ratio, .50 to .53

## 22 The Action

#### The "Hidden Things"

- Shank weight
  - Heaviest to lightest
- Shank repinning
  - Controlling shank friction is a big key to touchweight
- Precise action spread
  - Straight line through jack-to-knuckle alignment
    - Incorrect hammer bore can be cause of mismatch

- "Magic Line" compliance
  - only really effective way to alter ML is with changing the location of wippen cushion
    - could be height, could be front to back, sometimes both
- Precise stack height and angle
- Precise key height
  - By case parts---has small effect on geometry

# 23 <a> The Action</a>

The "Hidden Things"

- on some pianos, when we lower AR or KR we improve the relationship of whites and sharps
  - example: at evaluation, 5.8 whites, 6.2 sharps; when moved to 5.5 on whites, sharps change to 5.5 also. On another piano, both keys are at 6.0--when AR is lowered, sharps go to 5.2...no...too much dip.
- Every action center falls within tight friction parameters
  - 1. Hammer center 2. Rep lever

# 24 The Action

The "Hidden Things"

- Balance Weight: a main key to "like buttah"
- Keys weighed to uniform BW---makes the leading more uniform from key to key; makes the front weights more smooth
- Eliminates friction from the equation. Gives very much smoother FW than weighing off to any DW/UW target will.

#### 25 The Action

- Intuitive Regulation
- Definition
- Body as feedback loop
- Beyond measurement
- Experiment with how subtle spec changes translate into touch changes
- Round after round
- Playing it in
- Artist feedback

# 26 The Clientele

- 2 to 4% of piano-buying public
- Lovers of, even obsessives about, pianos
- Major urban area or active college town
- Wealthy; want the best
- Professional

- Dedicated upper middle class amateurs
- Schools
- Performance Venues
- Recording studios

# 27 The Clientele

- Respond to:
  - Honesty and more honesty
  - Reputation
  - Respect, not sycophancy
  - Quality of pianos---FUNDAMENTAL
- 28 Custom Restoration:
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Thank you for the greatest gift you can give: Your sustained, focused, heartfelt attention.

SEE YOU IN THE REBUILDER'S GALLERY

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